Abstract:

The aim of this study was to quantify and compare adhesive remnant and degree of enamel loss after debonding and clean up under two adhesive systems using optical coherence tomography. Metal and ceramic brackets were bonded on 160 human premolars under self etch and conventional etch adhesive system. After debonding, high speed and low speed tungsten carbide bur clean up technique was used. The samples were scanned using a spectral domain optical coherence tomography system and the images were captured in 2-dimensional and 3-dimensional modes before and after debonding and cleanup. The results showed that, after debonding, the amount of remaining adhesive was similar for both metal and ceramic brackets irrespective of the type of adhesive system used. Enamel loss and remaining adhesive layer in area and depth was more in high-speed tungsten carbide bur clean up procedure than low speed tungsten carbide bur clean up procedure. Adhesive remnant in area and depth after clean up was less for self etch adhesive system when compared to the conventional etch adhesive system. Conclusion: self etch adhesive system and low speed tungsten carbide bur clean up technique has shown to be promising in minimizing the damage to the enamel.

Key words: self etch adhesive system, optical coherence tomography, tungsten carbide bur, enamel loss.